## AMENDMENTS TO THE CLAIMS

- 1-11 (canceled).
- 12. (original) An isolated nucleic acid molecule comprising a nucleic acid sequence encoding a protein having glycosyl hydrolase activity, wherein the nucleic acid sequence is selected from the group consisting of
  - (a) a nucleic acid sequence that is SEQ ID NO: 5;
  - (b) a nucleic acid sequence encoding a protein comprising the amino acid sequence of SEQ ID NO: 6;
  - (c) a nucleic acid sequence that is SEQ ID NO: 7;
  - (d) a nucleic acid sequence encoding a protein comprising the amino acid sequence of SEQ ID NO: 8; and (e) a nucleic acid sequence that is degenerate as a result of the genetic code to the nucleic acid sequence of (a), (b), (c) or (d).
- 13. (original) An isolated nucleic acid molecule according to claim 12, wherein the glycosyl hydrolase has a hydrophobic cluster analysis (HCA) score with the kappacarrageenase of *Alteromonas carrageenovora* which is greater than or equal to 75% over the domain extending between amino acids 117 and 262 of the amino acid sequence of *Alteromonas carrageenovora* that is SEQ ID NO: 6.
- 14. (original) An isolated nucleic acid molecule according to claim 13, wherein the HCA score is greater than or equal to 80%.
- 15. (original) An isolated nucleic acid molecule according to claim 13, wherein the HCA score is greater than or equal to 85%.
  - 16. (original) A vector comprising a nucleic acid molecule according to claim 12.

- 18. (original) A method of producing a protein having glycosyl hydrolase activity, the method comprising:
  - (a) obtaining the host cell of claim 17; and
  - (b) growing the host cell under conditions and for a time sufficient to produce the protein.
  - 19. (new) A method of producing kappa-oligocarageenans, comprising
  - (a) genetically modifying a host cell with a nucleic acid molecule having SEQ ID NO:
- 5, or with a vector comprising a nucleic acid molecule having SEQ ID NO: 5;
- (b) culturing the host cell until a protein having glycosyl hydrolase activity is produced;
  - (c) isolating the protein having glycosyl hydrolase activity;
- (d) contacting the isolated protein having glycosyl hydrolase activity with a carrageenan until kapp-oligocarrageenans are produced; and
  - (e) recovering the kappa-oligocarrageenans.
  - 20. (new) A method of producing kappa-oligocarageenans, comprising
  - (a) genetically modifying a host cell with a nucleic acid molecule having SEQ ID NO:
- 7, or with a vector comprising a nucleic acid molecule having SEQ ID NO: 7;
- (b) culturing the host cell until a protein having glycosyl hydrolase activity is produced;
  - (c) isolating the protein having glycosyl hydrolase activity;



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(d) contacting the isolated protein having glycosyl hydrolase activity with a carrageenan until kapp-oligocarrageenans are produced; and

(e) recovering the kappa-oligocarrageenans.

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